

8
IN THE CLAIMS

1 - 47 (Canceled)

48. (New) A semiconductor device comprising:

a semiconductor chip having a first major surface and a second major surface opposing the first major surface;

an active region on a side of the first major surface;

a layer of a first conductivity type on a side of the second major surface, the layer of the first conductivity type exhibiting relatively low electrical resistance;

a first main electrode electrically connected to the active region;

a second main electrode electrically connected to the layer of the first conductivity type;

a drain drift region between the active region and the layer of the first conductivity type, the drain drift region providing a vertical drift current path in the ON-state of the device and being depleted in the OFF-state of the device; and

a breakdown withstanding region around the drain drift region and between the first major surface and the layer of the first conductivity type,

wherein the breakdown withstanding region substantially does not provide any current path in the ON-state of the device and is depleted in the OFF-state of the device,

wherein the breakdown withstanding region comprises an alternating conductivity type layer comprising first regions of the first conductivity type and second regions of a second conductivity type arranged alternately with each other; and

wherein the drain drift region comprises an alternating conductivity type layer comprising vertical drift current path regions of the first conductivity type and vertical partition regions of the second conductivity type, the drift current path regions and the partition regions extending in the thickness direction of the semiconductor chip, and the drift current path regions and the partition regions

being arranged alternately with each other;

wherein the alternating conductivity type layer of the drain drift region comprises a laminate formed of a plurality of a pair of the drift current path region and the partition region and the alternating conductivity type layer of the breakdown withstanding region comprises a laminate formed of a plurality of a pair of the first region and the second region;

wherein the pitch of repeating in the breakdown withstanding region, at which the pair of the first region and the second region is repeated, is narrower than the pitch of repeating in the drain drift region, at which the pair of the drift current path region and the partition region is repeated, and wherein the alternating conductivity type layer of the breakdown withstanding region comprises a first alternating conductivity type section including the first regions and the second regions, the boundary planes therebetween extend almost in parallel to the boundary planes between the drift current path regions and the partition regions of the drain drift region ; and a second alternating conductivity type section including the first regions and the second regions, the boundary planes therebetween extend in perpendicular to the boundary planes between the drift current path regions and the partition regions of the drain region.

49. (New) The semiconductor device according to Claim 48 wherein the plane, on which the end faces of the first regions and the second regions of the first alternating conductivity type section are arranged alternately, is bonded to the plane, on which the end faces of the drift current regions and the partition regions of the drain drift region are arranged alternately.

50. (New) The semiconductor device according to Claim 48 wherein the alternating conductivity type layer of the breakdown withstanding region further comprises a third alternating conductivity type section in the corner portion of the breakdown withstanding region defined by the first alternating conductivity type section and the second alternating conductivity type section; the third alternating conductivity type section including the first regions and the second regions extending in parallel to the first regions and the second regions of the first alternating conductivity type section or the second alternating conductivity type section.
51. (New) The semiconductor device according to Claim 48 wherein the plane, on which end faces of the first regions and the second regions of the first alternating conductivity type section or the second alternating conductivity type section are arranged alternately, is bonded to the boundary plane of the innermost second region of the second alternating conductivity type section or the first alternating conductivity type section.